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IN THE DRAWINGS

**Please replace drawing Figures 3C and 2F with the attached drawing figures.
No new matter has been added. The new drawings are the same as the original
except they are now enlarged to meet the Examiner's suggestions in his last Office
Action.**

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REMARKS

All claims are commonly owned by all named inventors at the time inventions covered in this application were made.

The Examiner made certain objections to drawing Figures 2E and 3C. The Examiner required that corrected drawings be filed with this Response. Applicant has complied with that request by submitting drawings that are readable.

Specifically, Figure 2E has been enlarged and a new figure, 2E', has been added. Figure 2E' shows the contents of hierarchical blocks 105-108. No new matter has been added. Please replace the original drawing sheet showing Figure 2E with Replacement Sheet 2E and add New Sheet 2E'.

The Examiner also objected to Figure 3C as being unreadable. Original Figure 3C has now been enlarged and separated into three drawing figures to accommodate the schematic originally depicted in Figure 3C. New drawing Figures 3C1, 3C2 and 3C3 contain the same electrical structure as original drawing Figure 3C. No new matter has been added. Please replace the original drawing sheet showing Figure 3C with New drawing sheets 3C1, 3C2 and 3C3.

The examiner rejected Claim 1 as being anticipated by Ward. The Examiner also rejected Claims 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20 and 21 were rejected by the Examiner as being unpatentable over Ward in view of Biegel. Applicant does not believe that the rejected claims are anticipated or rendered obvious by Ward or by Ward in view of Biegel or by any other known art, as described below.

The Examiner objected to Claims 7, 13, 16 and 22 as being dependent upon a rejected base claim. The Examiner stated that Claims 7, 13, 16 and 22 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claims 7, 13, 16 and 22 have been rewritten in independent form to include all the limitations of the base claim and intervening claims to insure that those claims will be allowed. Dependent Claims 8, 9, and 10 have been amended to be dependent on base Claim 7 rather than Claim 5, which has been cancelled.

Claim 22 now recites in the preamble that it is for "an inductively coupled device" rather than for an "implantable" device. Support for this is found in the entire Specification, but more particularly at page 1, lines 4-10.

Independent Claims 7, 13, 16 and 22 and Dependent Claims 8, 9, and 10 (dependent on Claim 7) remain in this application.

After consultation with the inventors, Applicants believe that allowance of Independent Claims 7, 13, 16 and 22 and of Dependent Claims 8, 9, and 10

(dependent on claim 7) will adequately protect their new invention. However, Applicant still maintains that neither Ward, nor Ward in view of Biegel either anticipate or render obvious their invention.

Patent 6,943,680 (Ward) describes a multidimensional electromagnetic field production system for improving the communication between an interrogator and an RFID transponder by use of a rotating magnetic field. The patent also describes the use of an impedance matching network to lower the loss of the magnetic field producing system. (Col 4, line 35). Ward uses a 90-degree geometric relationship between the transponder and interrogator coils to accomplish its purpose. The instant invention has no reliance upon a unique geometry to minimize loss in the energy transmission scheme, and does not rely upon an analog matching network to accomplish minimal loss operation. In this regard, Ward shows none of the features of the invention here. The demodulation method, as shown in Figure 4 of Ward, shows a simple block labeled "Decode FSK." However, neither the body of the patent, nor the claims gives any details of this block since the invention has little to do with FSK demodulation.


A major distinction between the Ward patent and the present new invention has to do with which component of the inductively coupled link system is being FSK modulated and demodulated. The Ward patent describes a method for energy transmission from an interrogator to an RFID transponder, and communication from the transponder back to the interrogator. In the Ward invention the Decode FSK block is in the interrogator. Our invention describes precisely the opposite: communication from the interrogator to the remote device (which could be an RFID transponder), with the multiphase FSK demodulator in the transponder rather than in the interrogator. The use of the impedance matching network in Ward does not suggest the improvement of our invention with respect to low energy loss. In our invention, no impedance network is used and the minimal energy loss is obtained by strategic synchronous switching of the interrogator driver circuit – something not mentioned in Ward.

The further details of an FSK data transmission system, as described by Biegel (5,559,507), similarly deal with the transmission of information from the RFID transponder to the interrogator. However, our invention deals with precisely the opposite: the transmission of information from the interrogator to the transponder. This is a notable distinction because the challenges in forward data transmission (interrogator to transponder) are distinctly different than those of reverse data transmission (transponder to interrogator). For example, data transmission from an RF tower to a cell phone is different than data transmission from a cell phone to an RF tower. For the transmission of data from the interrogator, the problem is how to modulate a large strength magnetic field in a rapid manner without producing significant power loss. For the transmission of data from the transponder, the problem is how to produce adequate magnetic field strength for an extremely small magnetic field from the transponder while using the energy produced by the interrogator.

5 The Ward and Biegel patents deal with the opposite problem that our
invention addresses. In our invention, it is the interrogator magnetic field that is
being modulated with the FSK signal, and the transponder that is doing the FSK
demodulation. In the Ward and Beigel patents, it is the transponder signal that is
being modulated with the FSK signal, and the interrogator that uses the FSK
demodulator. This different problem results in different electronic structure. The
electronic circuitry in the instant invention is quite distinct from the circuitry in
Ward or Biegel. Ward and Biegel teach away from our invention since they deal
with different problems with different electronic circuitry to find different solutions.

10 Owing to the unique technological challenges associated with the
combination of producing a high-strength magnetic field and a high-bandwidth
communication channel at the interrogator for use by the transponder, our
invention provides a unique and unprecedented solution. Neither the Ward nor
15 Beigel patents provide related solutions to this problem.

20 However, in view of the Examiner's acceptance of Claims 7, 8, 9, 10, 13, 16
and 22, Applicants request that the patent issue forthwith.

25 Respectfully submitted,

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